STANISLAUS RIVER BRIDGE
(Bridge Number A-1096.719)
ATCHISON, TOPEKA & SANTA FE RAILWAY
RIVERBANK VICINITY
STANISLAUS COUNTY
CALIFORNIA

HAER No. CA-161

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
WESTERN REGION
DEPARTMENT OF THE INTERIOR
SAN FRANCISCO, CALIFORNIA 94107

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HISTORIC AMERICAN ENGINEERING RECORD

STANISLAUS RIVER BRIDGE (Bridge No. A-1096.719)

HAER No. CA-161

Location: Atchison, Topeka and Santa Fe Railway Valley Division main line at crossing of Stanislaus River, Riverbank vicinity, Stanislaus and San Joaquin Counties, California.

UTM: 10-681410-4179000.
Quad: Riverbank, Calif. 7.5', 1969, photorevised 1987.

Date of Construction: 1905.

Engineer: Engineering Department, Atchison, Topeka and Santa Fe Railway.

Builder: American Bridge Company.

Present Owner: Atchison, Topeka and Santa Fe Railway
2650 Tulare Street
Fresno CA 93718

Present Use: Railroad bridge.

Significance: The Stanislaus River Bridge, also known as Bridge Number A-1096.719, determined eligible for inclusion in the National Register of Historic Places in 1994, represents a rare extant truss bridge in California's San Joaquin Valley. The bridge has a direct historical link to--and helped facilitate--improvements to, and expansion of, the Atchison, Topeka and Santa Fe Railway [hereinafter Santa Fe] in the San Joaquin Valley. These improvements and expansions helped to further break the monopoly long held by the Southern Pacific Railroad, fostering widespread settlement and agricultural development in this Valley in the first two decades of the 20th century.

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I. DESCRIPTION

The Santa Fe's Stanislaus River Bridge, known to the railroad as Bridge Number A-1096.719, is located on the county line between San Joaquin County to the north and Stanislaus County to the south, at 115 feet elevation in Section 24, Township 2 South, Range 9 East, Mt. Diablo Meridian, and carries the Santa Fe's Valley Division main line track over the Stanislaus River approximately seven-tenths of a mile north of the Santa Fe's Riverbank depot.

The structure is a seven-span railroad bridge, located on the Stockton Subdivision of the Santa Fe's Valley Division at milepost 1096.719, and crosses the Stanislaus River at a right angle (no skew). Spans 1, 2, 4, 5, 6, and 7 are 80-foot riveted, ballast-deck, plate girder spans on rocker bearings. Span 3 is a 175-foot pin-connected through Pratt truss on roller bearings, with a 22-foot vertical clearance within the truss. The top and bottom chords and inclined end posts of the truss span have boxed tops and latticed soffits, while the vertical compression members are laced girders. Four lines of steel stringers support the timber deck on the truss span, while two lines of steel stringers support the deck on the girder spans. All spans were built in 1905 and are carried on backfilled reinforced concrete abutments and reinforced concrete piers that have cutwaters on their upstream edges; the piers are founded on timber piles. Viewed edge-on, the *cyma reversa* profiles of the pier caps give them a distinctly classical, columnar appearance. All spans have angle iron and wood guardrails. The American Bridge Company of New York fabricated all spans.

II. HISTORICAL INFORMATION

Regional History

While the history of the present Stanislaus River Bridge dates to 1905, the rail line it carries has a somewhat longer history, for this was the original main line of the San Francisco and San Joaquin Valley Railroad, built in the 1890s to break the monopoly of the Southern Pacific Railroad in the San Joaquin Valley.

Southern Pacific first built through the San Joaquin Valley in 1870, and induced settlement of the area by providing land lease and purchase offers at extremely reasonable prices. The railroad thus fostered its own captive group of shippers: the ranchers and farmers who followed its inducements. Initially relations between railroad and shippers were cordial. Gradually, however, greed on the part of the railroad prevailed, and by the early 1890s, the Southern Pacific had generated almost total dissatisfaction with

regard to the rates and services it provided to shippers in the San Joaquin Valley. The railroad held political sway within California, and used discriminatory local freight rates designed to benefit only itself. Disgruntled shippers claimed that it cost more to ship a car from a given point in the San Joaquin Valley to San Francisco or Bakersfield than to New York. The discrimination in rates was so egregious that many shippers utilized pack trains rather than patronize the hated Southern Pacific. The ultimate solution, they realized, was to build a railroad to provide competition and alternate routing.

A number of groups formed to break the Southern Pacific monopoly. These included the Traffic Association of California, the Merchant Shippers' Association, the League of Progress, the North American Navigation Company, and the San Francisco and San Joaquin Valley Railroad [hereinafter SF&SJV]. Internal disagreements between Leland Stanford and Colis P. Huntington had weakened Southern Pacific's position of solid control, and the time was ripe for change. On January 22, 1895 the San Francisco Chamber of Commerce played host to a meeting of 40 of the city's financial leaders. Isaac Upham proposed a "people's" railroad be built from Stockton to Bakersfield, with steamer connection between Stockton and San Francisco. Upham claimed the project could be begun with $350,000. In spite of the general dissatisfaction with Southern Pacific, initial subscriptions were few as many feared reprisal by the powerful S.P. It took the intervention of sugar magnate Claus Spreckels to add legitimacy to the project and to clarify the amount of money actually required to bring the project to fruition. Spreckels pointed out that they would be facing the most powerful corporation in California, and would need $3,000,000 to undertake the coming fight. Spreckels then subscribed to the tune of $500,000, and the publicity gained by his involvement led to large numbers of subscriptions from major investors in San Francisco, as well as from individual farmers up and down the Valley. Enough funds came in to allow organization of the SF&SJV on February 25, 1895.

Construction began from Stockton on July 22, 1895, under the direction of Chief Engineer William B. Storey, a native San Franciscan born in 1857. (Ironically enough, Storey's first railroad experience had been as a stake driver on a Southern Pacific construction crew.) Two thousand tons of rail arrived from New York, and the first of 300,000 redwood ties and trestle timbers from Humboldt and Mendocino Counties. Baldwin Locomotive Works supplied three locomotives. Given the relatively easy territory and gradients, construction progressed southward quickly. By mid-August 1896 the line had reached Fresno, and the first passenger train ran to that city on October 5. The railroad gained Bakersfield on May 27, 1898. Huge celebrations greeted the railroad's arrival at both locations, and residents of all the

valley towns along the line turned out to watch and the cheer the train they termed the "Emancipator."

The new railroad was never the financial success that its investors might have hoped, and by mid-1898 Spreckels and the other directors realized the necessity of achieving a connection with the Santa Fe. Negotiations began that autumn. On December 9, 1898, the Santa Fe purchased the SF&SJV for $2,462,300, giving shippers a valuable connection to a major competitor to S.P., and a new route to the East Coast. Santa Fe assured all concerned--those who had fought so diligently to break the Southern Pacific monopoly--that they would maintain and preserve the competing line. The SF&SJV thus became the Valley Division of the Santa Fe.

Santa Fe completed the rail link between Stockton and the Bay Area, building a line that included such engineering difficulties as crossing the tule swamps of the San Joaquin River delta, and construction of 5,560-foot Franklin Tunnel in the Coast Range Mountains. Saturated earth made construction of the tunnel difficult, and builders almost abandoned the project in favor of a switchback route, until Chief Engineer William B. Storey drained the mountain with a series of pipes. Santa Fe built a terminal in San Francisco on land reclaimed at China Basin, with car ferries serving the terminal from Point Richmond.

The railroad inaugurated freight service between Stockton and Point Richmond on May 1, 1900, and passenger service a month later. During the 15 years following purchase of the SF&SJV, Santa Fe also built a large number of branch lines to serve the Valley Division; these lines themselves generated industrial and agricultural growth in the San Joaquin Valley. Among these branch lines was one connecting Riverbank with Oakdale, and connecting Santa Fe with the Sierra Railroad.

The years immediately following acquisition of the Valley Division and completion of the line to the Bay Area also saw the Santa Fe undertaking system-wide improvements to the physical plant of the railroad, as locomotives and rolling stock grew larger and heavier. Along the Valley Division, these improvements largely meant reballasting the line for heavier engines, and the replacement of the original timber bridges of the SF&SJV with steel bridges. Santa Fe contracted with American Bridge Company for more than 16,000 tons of bridge material in 1905. Thus in that year the railroad built present Stanislaus River Bridge on virtually the same alignment as the original SF&SJV Howe truss bridge; indeed, the remnants of timber piles that can still be seen in the stream beneath the present bridge may be elements of that earlier structure.

Other improvements followed on the heels of the new Stanislaus River Bridge. In 1906 the railroad replaced a small girder bridge, built new reinforced concrete roundhouses at Richmond and Bakersfield, and a new reinforced concrete, Mission Revival style station at Corcoran. In 1907, a fire led to the partial collapse of Franklin Tunnel, and its rebuilding under the direction of Chief Engineer Storey. Original bridges were replaced at the Merced River in 1907, the Tuolumne River in 1908, the San Joaquin River north of Fresno, at Dry Creek near Modesto, and at Laton in 1910, the Kern River near Bakersfield in 1913, and the Kings River in 1914.

The Stanislaus River Bridge (crossing at the site of Burneyville, founded in 1867 by Major James Burney), was an important link in the system, and apparently was the first major bridge replacement on the Valley Division. Notably, this occurred in the year following completion of the Oakdale Branch from nearby Riverbank, and the resultant traffic increases likely required the new bridge. Immediately following completion of the new bridge, Riverbank became a division point on the Valley Division, and boasted shops and a roundhouse (no longer extant) giving employment to large numbers of workers. The new, stronger, heavier bridge was required for these other improvements to go forward. There was also a connection with the other line improvements, as the reballasting of the Valley Division was using gravel from Riverbank, and the heavy ballast trains required a modern steel bridge.

The building of the Oakdale Branch, facilitated by the new bridge, gave Santa Fe access to traffic generated by the mines of the southern Mother Lode. It also gave access to rich lands of the Modesto Irrigation District, through which it passed. (As had been the case with the construction of the original SF&SJV, a prohibitive Southern Pacific tariff placed on shippers at Sonora had generated the impetus for Santa Fe to build the branch line.)

The efforts of Claus Spreckels notwithstanding, some historians in recent years have questioned the real genesis of the SF&SJV. Southern Pacific often resorted to the building of lines under different corporate names, in order to avoid opposition, later subsuming these lines. A similar question has been raised regarding the SF&SJV: was it really an independent entity, or was it put forth as such, as a ruse by Santa Fe to avoid Southern Pacific suspicions? Consider these points: all the tools used in its oonstruction were imprinted "SANTA FE," and mileposts were marked in relation to the distance from Albuquerque, New Mexico, a town on the Santa Fe that was never intended to be served by the SF&SJV

Regardless of the foregoing, the rate reductions the new railroad provided unquestionably affected the successful development of the entire San Joaquin Valley. Its importance in California history cannot be understated. Less than a decade later, in the same year the present Stanislaus River Bridge was built, the Santa Fe's improvements and continued involvement in the San Joaquin Valley economy facilitated major land and agricultural development, as made clear in contemporary newspapers and company periodicals. These included land developments at Riverbank, Reedley, and Denair, and new connections with the California Wine Association in Fresno County. By 1908-10, the employees' magazine was filled with ads for land developments along the Valley Division, including those at Escalon and Whitton. Lacking the competition afforded by the new line, the San Joaquin Valley might well have languished under the Southern Pacific monopoly and its agricultural development would undoubtedly have been long-delayed.

Historical Significance

The AT&SAF Stanislaus River Bridge is comprised of individual elements that had their origins in the 19th century. The Pratt truss, used here for the main span, dates to 1844, and is one of the two most common bridge truss type used in the United States. The riveted girder approach spans, originally developed for railroad use, also had their origins in the 1840s, and represent perhaps the single most common type of railroad bridge. Even the use of reinforced concrete, as here seen in the abutments and piers, can be traced to the 1890s, though the use here for bridge purposes in 1905 marks a comparatively early use the material. Finally, the American Bridge Company of New York was the single most prolific builder of metal bridges in the United States.

In assessing the integrity of the Stanislaus River Bridge, all points of integrity, as defined by the criteria of the National Register of Historic Places, emerge in strength. Even with a single compression member and a few tension members of the truss damaged in October 1992, the bridge retains a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association. The bridge appears today virtually as pictured in the *Santa Fe Employees' Magazine* in July 1908. The bridge continues to evoke a strong sense of time and place. Though the repairs to the damaged members are clearly identifiable, they do not alter the manner in which the truss functions, nor do they materially alter its appearance.

While the Pratt truss and the riveted girder are very common bridge types, one must consider them in context in order to assess significance. The use of truss bridges is comparatively uncommon through the San Joaquin Valley, both on highways and railroads. Trusses were used historically for larger stream crossings

requiring long spans, which are few in number in this area of California. Through trusses were used--as in this case--where clearance between high water and the bottom of the span was a consideration. At the time this bridge was built, the flood control systems imposed by Melones Dam--and later still, New Melones Dam--were not yet in place on the Stanislaus River. In other locations, particularly farther south in the valley, deck trusses--carrying the deck on the top chords--or long lines of girder spans were utilized where high water flows were not as substantial a problem. Thus, there is a clear relationship between this bridge and its particular site.

In considering relative rarity, a check of the records of the California Historic Highway Bridge Survey of 1984-86, the Southern Pacific Bridge Index, and the bridge records of the Santa Fe reveal a relative paucity of extant truss bridges in the San Joaquin Valley counties. Outside the Sacramento/San Joaquin River delta, the California Historic Highway Bridge Survey identified the following truss bridges as eligible for inclusion on the National Register of Historic Places:

1. In Stanislaus County, the Tuolumne River Bridge on Roberts Ferry Road, consisting of (two) 200-foot, pin-connected through Parker truss spans, built by American Bridge Company in 1915; the Orestimba Creek Bridge on Kilburn Road, a 60-foot, concrete encased pony truss, built in 1918 by the Pacific Construction Company; and the Orestimba Creek Bridge on a private road, a 50-foot iron, pin-connected bedstead pony truss built in 1889 by the Pacific Bridge Company.

2. In Merced County, the Merced River Bridge on River Road near Gustine, consisting of (two) 180-foot, pin-connected through Parker truss spans, built in 1910 by Western Bridge & Construction Company; and the Merced River Bridge on Oakdale Road, consisting of (three) 152-foot, pin-connected through Pratt truss spans, built in 1910 by Judson Manufacturing Company.

3. In Fresno County, the Murphy Slough Bridge on Elkhorn Road, consisting of (two) 106-foot, reinforced concrete Parker pony truss spans, built in 1914.

In the same geographic area, the Southern Pacific Bridge Index identifies only two truss bridges:

1. The San Joaquin River Bridge at the Mossdale Wye in San Joaquin County, consisting of (three) 106-foot Warren trusses, one a lift span, built by Bethlehem Steel and American Bridge Company in 1944.

2. The San Joaquin River Bridge at Herndon, consisting of (three) 160-foot riveted deck trusses, originally built over the Santa Clara River by the American Bridge Company in 1906 and moved to this location in 1948.

The Santa Fe's bridge records identify the following truss bridges in this geographic area:

1. The San Joaquin River Bridge, north of Fresno, consisting of six deck girder approach spans and (two) 200-foot deck Pratt truss spans, all built in 1910.

2. The Stanislaus River Bridge near Riverbank, the subject of this report.

Reviewing the above information, one finds that the Santa Fe's Stanislaus River Bridge is the oldest extant through truss bridge in the San Joaquin Valley, and is the largest of the through truss railroad bridges; only the deck truss spans of the Santa Fe's San Joaquin River Bridge near Fresno exceed it in length. Only the tiny Orestimba Creek bedstead pony truss is older, but represents a different truss type (pony truss) used for minor crossings. Further, while the Pratt truss represents a common bridge type when considered on a national or statewide scale, it is nonetheless a rarity in the context of the San Joaquin Valley.

As has been demonstrated in the foregoing history, this bridge is directly linked to events that forever changed the face of the San Joaquin Valley, facilitating its development into the present agricultural storehouse. It is linked to the modernization and expansion of the Santa Fe in the San Joaquin Valley, events that finally spelled the end to the monopolistic stranglehold that the Southern Pacific Railroad had long enjoyed. In this light, the Santa Fe's Stanislaus River Bridge was determined eligible for inclusion on the National Register of Historic Places under criteria A and C, at the local level of significance.

III. SOURCES

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IV. PROJECT INFORMATION

The Santa Fe has determined to replace a portion of the Stanislaus River Bridge. In October 1992, a loose load on a passing freight train struck and damaged compression and tension members of Span 3, the through truss span. While repairs were effected to allow the bridge to remain in service, the damage required that the bridge be posted for slower speeds, creating a bottleneck in Santa Fe's high speed mainline.

The project will remove Span 3, a 175-foot pin-connected steel Pratt through truss across the river's main channel, and replace it with two steel girder spans, 50 feet and 127 feet 6 inches in length respectively. Santa Fe chose the combination of replacement span length in order to minimize, to the extent possible, any significant encroachment into the river channel. This project will require the construction of one new bridge pier at the south edge of the river channel. The existing bridge, a critical link in the railroad's Valley Division mainline, will remain open during all but an estimated ten hours of the construction period, though it will be posted for slow speeds.

Santa Fe will prepare work and material staging areas prior to initiating construction activities, which will be limited to those areas within the railroad's right-of-way. This right-of-way parallels the bridge and extends 50 feet on each side of bridge centerline. In accordance with plans developed in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game, Santa Fe will clear brush and import clean soil or gravel to create level jacking pads on both sides of the existing river channel, and will control silt generation.

The railroad will drive steel piles to serve as piers for falsework to be constructed on both east and west sides of the existing bridge. The piles on the west side will be framed and capped, and will serve as temporary falsework for assembly of the replacement spans. The falsework on the east side will be used in disassembly of the existing truss Span 3. The new pier will be built concurrent with construction of the falsework piers.

While the new girder spans are being constructed on the falsework, the timber deck of truss Span 3 will be skeletonized: ballast will be removed as will the timber decking. When the new girder spans are ready, the bridge will be closed for approximately ten hours. Truss Span 3 will be jacked and lifted onto its falsework, after which the

new girder spans will be set in place and the bridge reopened. After the bridge has been returned to service, a new timber deck and rock ballast will be placed on the new spans.

The removed truss Span 3 will be disassembled on-site while still on the falsework, and loaded onto railcars or trucks for relocation or salvage off-site. Following removal of truss Span 3 from the site, construction will terminate with removal of the falsework and then the falsework piling will be cut off a ground level. Construction pads will be removed, and Santa Fe will restore the site to as near original condition as is possible.

In order to mitigate the adverse effects to the historic bridge, the U.S. Army Corps of Engineers, as the lead federal agency, executed a Memorandum of Agreement with the California State Historic Preservation Officer and the Advisory Council on Historic Preservation under the provisions of Section 106 of the National Historic Preservation Act, calling out specific mitigation measures. These mitigation measures require that prior to the removal and replacement of truss Span 3, the Santa Fe's Stanislaus River Bridge will be documented to the standards of the Historic American Engineering Record (HAER), with copies of the documentation made available to state and local repositories. In addition, a marketing plan is to be developed for truss Span 3, and implemented by the Santa Fe. Should all attempts to market and relocate the span fail, it will be demolished following acceptance of the HAER documentation by the National Park Service.